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## NEW GENERA AND SPECIES OF ITHOMIINAE (LEPIDOPTERA, NYMPHALIDAE)

BY RICHARD M. FOX

Mr. Frank Martin Brown sent me the Ithomiinae from his Ecuadorian collection, with the request that I study them and pass them on to the American Museum of Natural History for permanent deposit. Based on this study, three new genera and 12 new species and subspecies are presented here. All the type material is from Ecuador and, except as otherwise noted, from the Brown collection; holotypes and allotypes, except as otherwise noted, are in the American Museum of Natural History; paratypes are in the American Museum of Natural History, Academy of Natural Sciences of Philadelphia, Carnegie Museum, Instituto Oswaldo Cruz, Museum of Comparative Zoology, Reading Public Museum, and United States National Museum.

This paper is being published while I am in the Navy "somewhere in the Pacific." I am sincerely indebted to those who have helped prepare for publication my rough original material. Especially kind in this respect have been Dr. Walter Sweadner of the Carnegie Museum, and Miss Annette L. Bacon and Miss Alice Gray of the American Museum. And in this, as in all other projects on which I embark, my wife has functioned as my *alter ego*.

### ***Melinaea idae vespertina***, new subspecies

Figure 21

Haensch (1909, in Seitz, *Macrolepidoptera of the world*, vol. 5, p. 124) noted that the Ecuadorian race of *Melinaea idae* C. and R. Felder varies from the Colombian race in its narrower hindwing margin and smaller size. In itself this may appear trivial. However, a large series of both sexes in the Brown collection from the Pacific drainage has enabled me to make a

comparison with a good series from Colombia in the Mengel collection at the Reading Public Museum. The differences are more numerous than mentioned by Haensch and are perfectly consistent. This form is found only in western Ecuador. No representative of the species has been recorded from the Oriente region.

**MALE AND FEMALE:** Like *idae idae* except as follows. The black margins of the hindwings are strikingly narrower, being 5 to 7 mm. wide at  $M_3$ , as compared to a width of 9 to 12 mm. in *idae*. Furthermore, the proximal boundary of this border is clean cut and definite, while in *idae* it is ill defined and obscured by a median band of black brown scaling which suggests the more definite median band of the "Lycorea pattern"; in *vespertina* this scaling is wholly wanting, the tawny ground color being clear and clean. The expanse of the forewing is less, 75 to 80 mm. as compared with 80 to 85 mm.; the apex is more acute. The yellow postmedian spot of the forewing at  $M_3-Cu_1$  is tiny, vestigial, or wanting; in *idae* it is always well developed and definite. As a general rule the black wedge-shaped spot in the forewing cell is prolonged nearly to the base under the median in *vespertina*; in *idae* this spot is chunkier and not prolonged basad. On the forewings beneath, the orange tawny below  $Cu_2$  in *vespertina* extends to the edge of the yellow spot in the anal angle; in *idae* the yellow anal angle spot is surrounded by black.

**TYPE MATERIAL:** Holotype, male, Playas de Juan Montalvo, Los Rios, Ecuador, 30 meters, March, 1938. Allotype, female, topotypic, March 14, 1938. Paratypes: 55 males and 15 females, topotypic; six males and one female, Santo Domingo de los Colorados, Pichincha; 12

males and five females, Palmar, Manabi; two males and two females, Balzapamba, Bolivar; two males, Huigra, Chimborazo (Rhoades); one male, Hacienda Cutuguay, Chimborazo (Coxey).

***Ithomia diasia browni*, new subspecies**

Figures 1, 26

A small series from the Brown collection captured on the Pacific slopes appeared to be *Ithomia diasia* Hewitson but upon comparison with a set of specimens from Colombia in the Reading Public Museum turned out to be undescribed; no doubt it is mixed with *diasia* in collections.

MALE AND FEMALE: *Ithomia diasia browni* is a little smaller than *diasia diasia* in both sexes, the forewing apices are slightly less acute, the black margins and

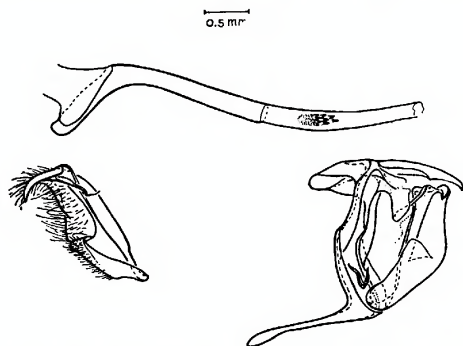


Fig. 1. *Ithomia diasia browni*, dissection of male genital armature. (Drawn by Alice Gray.)

the discocellular and cell bands are noticeably thinner. On the underside, *diasia* has tawny only in the outer half of the hindwing costal margin, all other margins and bands being black, and the white dots in the borders are wider and tend to be round; *browni* has the tawny on the outer half of the hindwing costal margin also, but there is a rich red brown scaling along the inner edge of the forewing distal margin, in the discocellular and cell bands, and along the inner edge of the hindwing distal margin, and the white spots in the border are narrow and elongated.

This subspecies is named for Mr. Frank Martin Brown.

TYPE MATERIAL: Holotype, male, Palmar, Manabi, Ecuador, 200 meters, April

4, 1941 (genitalia slide 435). Allotype, female, Santo Domingo de los Colorados, Pichincha, Ecuador, 500 meters, January 1, 1941. Paratypes: one male, Palmar, Manabi; one female, Santo Domingo de los Colorados, Pichincha; one male, Rio Toachi, Pichincha; one male and one female, Morro-Morro, near Piñas, El Oro; six males, Dos Puentes, Chimborazo (Coxey); one male, Hacienda Cutuguay, Chimborazo (Coxey); two males, Ecuador (von Hagen).

The Whymper record of *Ithomia diasia* from Chimbo cited by Campos (1921, Rev. Colegio Nac. Vicente Rocafuerte, no. 4, p. 20; and 1927, *ibid.*, nos. 27-28, p. 9) probably is this form.

***Hypothyris meterus zephyrus*,  
new subspecies**

Figure 28

The species as a whole may be recognized by the two light spots near the margin of the forewing,  $M_3$ - $Cu_1$  and  $Cu_1$ - $Cu_2$ ; these are in the submarginal position, but the persistence of these two only, with the loss of the others of the series, suggests that they probably are admarginal rather than submarginal. This is the first record of *H. meterus* Hewitson west of the divide. It has the yellow postdiscal band of *H. m. deëmae* Fox, but it is wider, the distad projection over  $M_2$  especially being deeper and rounded. The forewings of *zephyrus* are a little broader, the apex is blunter.

FEMALE: Forewing above and below agrees closely with *deëmae*, especially with the paratype from eastern Ecuador now in the United States National Museum. The postdiscal yellow band is wider, being fully 7 mm. wide along  $M_2$ , as compared to 5 mm. or less in *deëmae*, and the projection along this vein in *zephyrus* is broadly rounded, rather than pointed. There is yellow scaling below  $Cu_2$  at the end of the black comma mark, which here is nearly as broad at its proximal end as at the margin, thus being rectangular rather than wedge shaped. The two yellow submarginal dots characteristic of this species are present, strong; there are vestigial submarginal dots at R- $M_1$  and  $M_2$ - $M_3$ , especially visible beneath. Hindwing above with distal mar-

gin narrowly tawny from the apex; a black bar over the upper part of the cell and below Sc; a black median band beginning in the middle of  $M_2-M_3$  and extending nearly to the inner margin just below the cell, both sides of it denticulate. A black submarginal series, of which only the first spot,  $M_3-Cu_1$ , is isolated, the others connected with the marginal line;  $Cu_1$  remains tawny nearly to the margin, however. Remainder of the wing tawny. Hindwing beneath similar, the black markings stronger; two additional black spots, one beyond the end of the cell opposite the black costal bar, as in *meterus meterus*, and a small narrow streak in the cell opposite  $M_3-Cu_1$ , as in *deëmae*; costal margin narrowly tawny; a small yellow spot over the base of the humeral vein. Antennae and body colors as in *deëmae*.

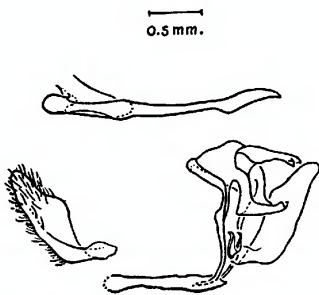


Fig. 2. *Ceratinia bisulca*, dissection of male genital armature. (Drawn by Alice Gray.)

**TYPE MATERIAL:** Holotype, female, Rio Toachi, Pichincha, Ecuador, 800 meters, November, 1939.

### *Ceratinia bisulca*, new species

Figures 2, 3, 27

**MALE:** No doubt this has passed heretofore as *C. callichroma* Staudinger, which it closely resembles. The yellow postmedian fascia of the forewing is wider than in *callichroma*; its distal edge is bowed so that it is wider in the middle, and it extends into the anal angle below the comma mark. In *callichroma* the narrower yellow fascia has a nearly straight distal edge, not being wider in the middle than at the costa, and the lighter color beneath the comma mark is tawny, not yellow. The black median band of the hindwing is composed of a

series of dentate spots centered on the veins and pointing anteriorad, and the basal area within this band is slightly more transparent and is tinged faintly with yellow, somewhat as in *C. nise* Cramer. In *callichroma* the spots of the median band are heavier, while their points are directed posteriorad, the anterior edge of the band being straight. The hindwing beneath bears a series of tiny white spots placed in the black triangles of the border, as in most *Ceratinia* species. *C. bisulca* is entirely semitransparent, even to the black apices of the forewings, fully as transparent as *C. singularis* Rebel, and decidedly more so than *callichroma* or *C. poecila* Bates. *C. bisulca* was found flying with these last two species. The genitalia are remarkable for the cleft, laterally bifid uncus. This character, which at first I took to be an



Fig. 3. *Ceratinia bisulca*, center figure of bifid uncus compared with uncus of other species. (Drawn by R. M. Fox.)

individual freak, is present in every slide I have made of the species, but has not been observed in any other *Ceratinia*.

I have seen no females. These should be recognizable by the peculiarities of the hindwing median band and the light fascia across the forewings.

**TYPE MATERIAL:** Holotype, male, Hua-gra-yacu, Oriente [Napo-Pastaza], Ecuador, 900 meters, April 8, 1941 (genitalia slide 404). Paratypes: two males, topotypic; one male, Puyo, Napo-Pastaza; one male, between Chupientza and Rio Tayusa, Rio Upano, Santiago-Zamora; one male, Zumbi, Rio Zamora, Santiago-Zamora; one male, Mayaico, Rio Nangarico, Santiago-Zamora.

### A NOTE ON THE *Dircenna* COMPLEX

Figure 4

According to the male genitalia, as well as venation, *Dircenna* Doubleday must be



limited to those species with a relatively shorter penis (two and one-half to one and two-thirds the length of the tegumen plus uncus), the proximal end of which is bilobed and which lacks a subterminal spine. I have examined preparations of the following forms belonging to *Dircenna*: *jemina*, *euchytma*, *bairdii*, *sunna*, *loreta*, *olyras*, *relata*, *calverti*, *klugii*, *dero*, *zelie*, *varina*, *visina*, *vandona*, and *xanthophane*. The females of all of these have four-jointed tarsi on the foreleg. Thus, Schatz's definition of the genus (1892, in Staudinger and Schatz, *Exotische schmetterlinge*, vol. 2, pp. 95-96) is strengthened by the male genitalia.

The species placed in *Callithomia* and *Corbulis* (= *Epithomia*) and some residue species generally placed in *Dircenna* may

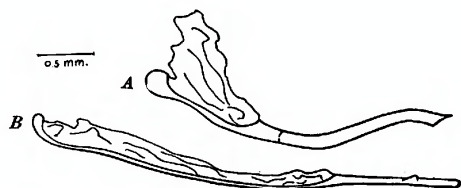


Fig. 4. a, Penis of *Dircenna varina*. b, Penis of *Callithomia beronilla*. (Drawn by R. M. Fox.)

be distinguished from *Dircenna* proper by the relatively longer penis (two and one-half to four times the length of the tegumen plus uncus), having the proximal end rounded and possessing a subterminal spine near the distal end. The females all have the five-jointed fore tarsus. This block of forms may be divided into two groups of less than generic value: (1) Penis with weaker subterminal spine short, not much more than a little tooth. These are included: *alexirrhoë*, *alphi*, *agrippina*, *butes*, *infusca*, *hezia*, *hedila*, *tridactyla*, *megaleas*, and *beronilla*. (2) Penis with strong subterminal spine, about one-third the length of the costa of the valve. These are included: *xantho*, *methonella*, *inturna* (= *rufa*), *epidero*, *lenea*, and *drogheda*. Note that the first group includes the genotypes both of *Callithomia* (*alexirrhoë* Bates) and of *Corbulis* (*agrippina* Hewitson = *Epithomia callipero* Bates). A reexamination of the characters such as the disco-

cellular veins of the hindwings, the humeral, and the hair patch, by which I separated the two names previously (1940, *Trans. Amer. Ent. Soc.*, vol. 66, pp. 194-195), demonstrates that there is complete intergradation. *Corbulis* Boisduval (1870) and *Epithomia* Godman and Salvin (1879) both fall before *Callithomia* Bates (1862). The second group, made up of species which must be disassociated from *Dircenna*, seems to be only a slight developmental step beyond *Callithomia*. Genitally, the length of the subterminal spine of the penis is the only distinguishing feature, and that itself is gradated among the species, strongly suggesting a complete transition to the species of classical association in *Calli-*

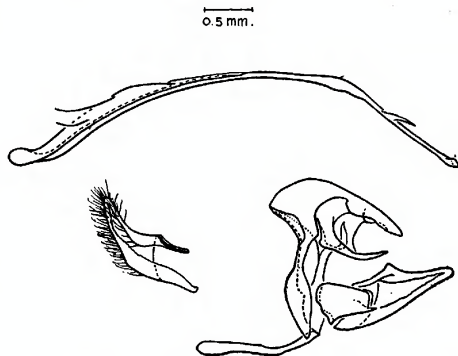


Fig. 5. *Callithomia zingiber*, dissection of male genital armature. (Drawn by Alice Gray.)

*thomia*. Accordingly I place these forms in *Callithomia*. One might give them a subgeneric name, but they emphatically are not a separate genus. They are very closely connected with *Callithomia* proper, but have only a superficial connection with *Dircenna*.

#### ***Callithomia zingiber*, new species**

Figures 5, 23, 25

This may turn out to be a subspecies of *C. pulcheria* Hewitson, of which I have seen only the single female in the United States National Museum taken by Coxey at Hacienda La Merced, Tungurahua, Ecuador. Distributional considerations involving *pulcheria*, *zingiber*, and the species following lead to a separation at this time.

**MALE AND FEMALE:** The female of

*zingiber* is marked exactly as is the female of *pulcheria*, except that the tawny of the forewing is confined to a strip of scaling along the mid part of the anal margin, instead of filling the base of the wing and running out below  $Cu_1$  to the yellow spot. The hindwings are identical on both sides. The under side of the forewing varies between the two forms in the same way as does the upper side, but the submarginal tawny scaling present in *pulcheria* (according to the female seen) is wanting or slight in all six females of *zingiber*. Like *pulcheria* there is a series of yellow transparent spots in the black outer half of the forewing: an oval one  $Cu_1-Cu_2$ , a narrow one  $M_3-Cu_1$ , a smaller narrow one  $M_2-M_3$ , a long streak  $M_1-M_2$ , a smaller streak below Rs and an opaque yellow costal spot. These yellow transparent spots are surrounded by black transparent in both *zingiber* and *pulcheria*. The forewing beneath bears three to five white submarginal dots at the apex. The hindwing is orange tawny, slightly more transparent in the disc, with narrow black margins which, when heavier, are scalloped between the veins, and with a black bar over Rs and Sc from the base to the apex of the cell. Beneath, the hindwing bears a series of white submarginal dots placed in the black marginal scallops, and the costal margin itself is tawny orange.

Superficially, the male is completely different, and it was with some surprise that I realized its association with the female. The forewing resembles the markings of *C. epidero* Bates, but the hindwing is unique. Forewing cell with a black triangular spot near the base resting on the cubitus, the margins above R and below  $Cu-Cu_2$  black and opaque, interrupted at the end of the cell by a yellow opaque spot; distal margin narrowly black, wider at the apex; discocellular band black, curving out to fill the basal fourth of  $M_2-M_3$ , and not continued strongly over  $Cu_1$ , as is the case in *epidero*. The hindwing has a narrow black border scalloped lightly between the veins, preceding which is a brilliantly orange tawny opaque band nearly 4 mm. wide at  $Cu_1-Cu_2$ , narrowed to about 1 mm. in  $M_3-Cu_1$  and wider around the apex; disc of the wing transparent, tawny suffusion

on the veins and in the cells except near the orange border; between this tawny transparent and the marginal tawny opaque is a band of transparent, situated about where the black loop of *C. lenea* Cramer would be. Beneath, some subapical white dots on the forewing and a complete series on the hindwing. In both sexes the submarginal dot of the hindwing at  $M_2-M_3$  is weak or wanting.

Antennae black with yellow clubs; head and thorax black with a few white spots; abdomen black brown above, yellow green beneath, with some yellow green spots on the sides of the posteriormost segments, and a lateral streak on the anteriormost segment.

TYPE MATERIAL: Holotype, male, May-aico, Rio Nangarico, Santiago-Zamora, Ecuador, 1000 meters, November 21, 1941 (genitalia slide 425). Allotype, female, Zumbi, Rio Zamora, Santiago-Zamora, Ecuador, 700 meters, November 10, 1941. Paratypes: one female, May-aico, Rio Nangarico, Santiago-Zamora; four females, Zumbi, Rio Zamora, Santiago-Zamora.

### *Callithomia lauta*, new species

Figure 24

Coxey collected a female on the Rio Pastaza at the same station, Hacienda La Merced, and on the same day that he captured the above-mentioned female of *C. pulcheria* Hewitson. Although it may be only an aberration of *pulcheria*, the considerable difference in the development of the pattern elements leads me to believe that it is distinct. I have been unable to associate it with any described form.

FEMALE: Like *C. zingiber* Fox, the tawny of the forewing is confined to a small area at the middle of the hind margin, the rest of the wing being black with light spots between the veins. But whereas these light spots in *zingiber* and *pulcheria* are surrounded by black transparent, in *lauta* the black transparent is found only in  $Rs-M_1$  and at the end of the cell above Mr, the other spots being sharply defined by the opaque black along the veins and at the distal margin. The black scaling on the veins is narrow, a little wider on  $Cu_1$ . The

light spots are yellow transparent, their outer parts (except the one just below  $R_s$ ) being more opaque and scaled with bluish white. The yellow costal spot is much elongated, running from just proximad of the base of  $R_1$  to the base of  $R_3$ - $R_4$ . There is a yellow transparent spot in the end of the cell below  $Mr$ ; base of cell solidly black. The hindwing above is tawny orange with narrow, scalloped black border and semi-transparent disc as in *pulcheria* and *zingiber*. Forewings below with five subapical white spots. Hindwing below as in *pulcheria* and *zingiber* except that the marginal black is triangular between the veins and contains larger white submarginal spots in the apices of the triangles. There is a distinct, though narrow, black loop, as in *C. lenea* Cramer, running down from the outer end of the black costal bar, parallel to the margin, ending just beyond  $Cu_1$ , and marking the boundary between the opaque and the semi-transparent tawny orange. Antennae and body as in *zingiber*.

This is one of the most beautifully colorful Ithomiinae I have seen. The bluish white shading on the yellow spots of the forewing is particularly striking, being better described, perhaps, as pale blue.

TYPE MATERIAL: Holotype, female, Hacienda La Merced, Rio Pastaza, below Baños, Tungurahua, Ecuador, 4000 feet, March, 1930 (W. J. Coxe), in the United States National Museum.

### *Velamysta phengites*, new species

Figures 6, 17, 20

This is closest to *V. cruxifera* Hewitson but is definitely a distinct species, and the two were found together by Brown. Aside from a number of genitalic differences, the coloration and pattern differ markedly, although the same pattern elements are present. *V. phengites* is slightly smaller than *cruxifera*, the dark discocellular spot of the forewing is reduced to some scaling on the veins, the transparent smoky areas of both wings are much lighter, the orange on the costal margin of the forewing does not extend beyond the cell apex, the hindwing has an ochre cast rather than whitish and lacks the strong postmedian smoky shade, and the margins of the wings are less in-

dented between the veins. The appearance of this insect is very similar to *Greta ortygia* Weymer and to *Godyris cleonica* Hewitson, both of which Brown found flying with it.

MALE AND FEMALE: The forewing of the male is transparent; costal margin ochre brown, rather lighter and more orange proximal of the cell apex; distal margin of the same color, narrow, dentate on the veins; hind margin similarly colored behind cubitus- $Cu_2$ , some black scaling along the edge of the wing; discocellular veins blackish; all other veins ochre brown except the extreme proximal end of  $M_1$  which is whitish. A very faint whitish cell bar; a narrow white spot indenting the costal margin just beyond the cell apex; below the radius and at the end of the cell it is continued as a transparent

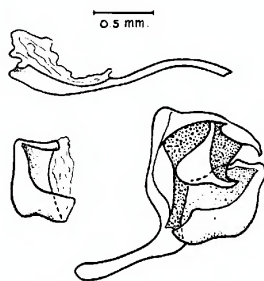


Fig. 6. *Velamysta phengites*, dissection of male genital armature. (Drawn by R. M. Fox.)

white spot which crosses the base of  $M_1$ . Transparent white spots as follows: a larger one on the base of  $Cu_1$ - $Cu_2$ ; a small oval one  $M_2$ - $M_3$  one third of the way out to the margin from the cell; five against the marginal color between veins  $R$  to  $Cu_2$ , and two between  $M_1$  and  $M_3$  the smallest. Hindwing transparent, clouded with ochre, especially toward the anal angle; hair pencils gray brown, the little outer one over a round white spot; the friction patch pearly brown; distal margin not sharply defined, narrow, ochre brown, partly replaced proximad with ochre orange from  $M_3$  to the anal angle; transparent white spots against the marginal color from  $R$  to  $M_3$ , and a suggestion of another spot below  $M_3$ ; a very faintly whitish spot over the base of



$M_1$ ;  $Cu_2$  and the anal veins ochre orange; all others ochre brown. The forewing beneath exactly as above, the marginal color a little lighter; pearly brown friction patch at the anal margin. Hindwing beneath as above; radius black brown from the base to the cell apex; costal margin and humeral angle gray ochre anterior of Sc; an oval gray white spot over the thickening of R, but the vein itself ochre brown here; marginal color lighter than above. Genitalia mostly similar to *cruxifera*, but vary from it in the shape of the valve, which in *cruxifera* is pointed but in *phengites* rounded.

The female is like the male, but the coloring is stronger, the borders are slightly wider; the white spot on the costal margin of the hindwing is, of course, wanting. R and  $M_1$  stalked, Sc coalesced with the radius to within 3 mm. of the cell apex, its free length no longer than 3d.

Antennae in both sexes black; head, thorax, and legs black, white scaling; abdomen black brown above, ashen beneath.

TYPE MATERIAL: Holotype, male, San Pablo, near Baños, Tungurahua, Ecuador, 2200 meters, October 15, 1938. Allotype, female, same data. Paratypes: one male, topotypic; two males and one female, Rio Blanco, near Baños, Tungurahua (genitalia slide 382); one male, Yungilla, near Baños, Tungurahua.

### *Pteronymia browni*, new species

Figures 7, 16

MALE: This is of the same size, wing shape, and scheme of markings as *P. ticida* Hewitson, but the clubs of the antennae are yellow, not black. All black markings are heavier, especially the forewing discocellular band, and there is a clear yellow tinge on the disc of the hindwing, very slight at the extreme base of the forewing. *P. ticida*, by contrast, has an orange yellow tinge on the bases of both wings. Beneath, the margins of *P. browni* are solidly black, without any trace of tawny scaling, and the white dots at the apex of the forewing and in the hindwing border are small, round. In *ticida* these spots are oblong or elongated, not round,

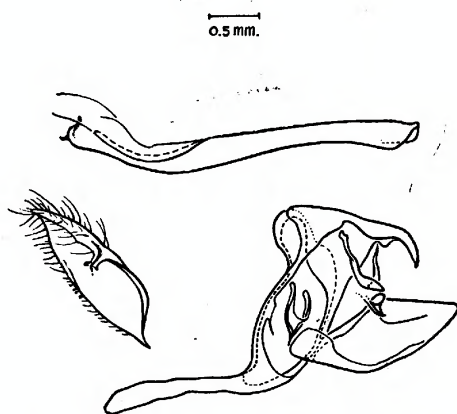


Fig. 7. *Pteronymia browni*, dissection of male genital armature. (Drawn by R. M. Fox.)

and the black border has a little tawny brown scaling at the veins of the hindwing.

This species is named for Mr. Frank Martin Brown.

TYPE MATERIAL: Holotype, male, Rio Jondachi, near Archidona, Napo-Pastaza, Ecuador, 800 meters, November, 1939 (genitalia slide 434).

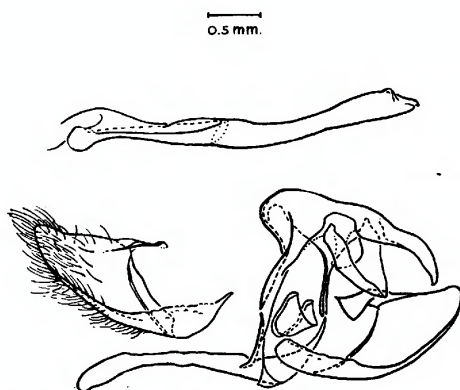


Fig. 8. *Pteronymia gertschi*, dissection of male genital armature. (Drawn by Alice Gray.)

### *Pteronymia gertschi*, new species

Figures 8, 19

This species is similar to *P. tucuna* Bates, of which fine series were taken in northern Peru both by Bassler and by Klug. *P. gertschi*, however, is a little smaller, and the pattern is essentially different, although this is not immediately obvious because the elements are obscured by partial trans-

parency. The dark discocellular band of the present species is narrower, ends in an acute point at the lower end of 3d, whereas in *tucuna* the band is broader, covers the cubital segment and enters the base of  $M_2$ - $M_3$ . Further, there are no yellow transparent spots on the forewing apex of *gertschi*, the yellow median cloud of the forewing does not approach so closely to the borders, and its distal side is a straight line. Beneath, the brown of the borders is a little darker, more reddish, and the hindwing submarginal spots are flatter, nearer the margin with less white showing. Bassler found what I have taken to be typical *tucuna* flying along the lower Santiago; *gertschi* was collected upstream a relatively few miles. It is possible that their distributions overlap.

**MALE AND FEMALE:** Forewing of the male transparent; costal margin in the radius and distal margin narrowly, apex a little wider, hind margin behind cubitus- $Cu_2$  all black; discocellular band black, narrow, wedge shaped, ending acutely at the lower end of 3d. A sulphur yellow spot indenting the costal margin just beyond the discocellular band, continued as a transparent oblong spot which stands away from the dark band, with transparent between them, and ends at, but does not include,  $M_2$ . A long transparent yellow dash  $M_2$ - $M_3$ , placed distal of the oblong spot above it, separated from it by the black vein and serving as a continuation of it; even with the distal tip of this dash is a small short dash next to the dark border in  $M_3$ - $Cu_1$ ; an oblong dash filling the center of  $Cu_1$ - $Cu_2$ ; some yellow transparent in the outer third of the cell. All veins black except under the yellow discal spot. Hindwing with gray black pencil over a pearly black friction area; the distal margin black, fairly uniform in width, although a little widened near the cubitals, and tapering to a fine line beyond the anal. Rest of wing transparent, a yellowish cloud includes the cell, the proximal two-thirds of  $M_1$ - $M_2$ , the basal fifth of  $M_2$ - $M_3$ , half of  $M_3$ - $Cu_1$ , two-thirds of  $Cu_1$ - $Cu_2$ , and most of the anal cells. The distal edge of this cloud is a fairly straight line; between the yellow and the border, the wing is colorless,

transparent, the veins here being black, while in the cloud they are yellow. Beneath, the forewing with discocellular band and costal marginal color as far as the cell apex very dark red brown; costal margin beyond cell, and apical and distal margins ochre brown; hind margin a pearly black friction area; margins finely lined black distad; three small white apical spots, ringed black, mostly triangular. Hindwing beneath with central transparent area exactly as above; borders ochre brown, lined with black on each side, the marginal line a little broader, containing a series of flattened lunate black spots with smaller streak-like white centers; a black streak between the radius and Sc; costal margin and humeral angle ochre brown.

The female is substantially like the male. Borders and bands slightly heavier, yellow cloud somewhat stronger.

Antennae black with yellow brown clubs; head, thorax, and legs black with white scaling and spots; abdomen black brown above, sulphur yellow beneath.

This species is named for Dr. Willis J. Gertsch of the American Museum of Natural History.

**TYPE MATERIAL:** Holotype, male, Sucua, Santiago-Zamora, Ecuador, 900 meters, February 1, 1939 (genitalia slide 433). Allotype, female, between Rio Tutenongoza and Sucua, Rio Upano, Santiago-Zamora, Ecuador, 900 meters, February 10, 1939. Paratypes: one male, between Rio Tutenongoza and Chupienta, Rio Upano, Santiago-Zamora; one male, between Chupienta and Rio Tayusa, Rio Upano, Santiago-Zamora.

### ***Episcada comstocki*, new species**

Figure 15

Twelve females collected by Brown and two by Coxey seem to be an undescribed species. I have not seen any males which seem to belong with the series. As far as the description by Haensch *in* Seitz goes (1909, *op. cit.*, vol. 5, p. 151), they fit *E. cabenis* Haensch, but do not match Haensch's figure and his original description (1905, Berliner Ent. Zeitschr., vol. 50, p. 171, pl. 5, fig. 6).

**FEMALE.** The wings are transparent,



evenly and very lightly dusted with white, with narrow black brown margins, a pointed discocellular band on the forewing, an orange brown streak between Rs and Sc above the forewing cell. Beneath, the margins are ochre, narrowly lined with brown on each side, and extremely minute whitish dots in the outer edge of the border at the apices of both wings. The humeral angle and costal margin above Sc of the hindwing are clear yellow. The forewing has an opaque white band against the dark discocellular band, beginning with the oblong costal spot and continuing of an even width to  $M_3$ , where it is cut off sharply. The veins are white within this band. There is a faint white spot in the anal angle of the forewing. Antennae black; head, thorax, and upper side of abdomen black brown; abdomen beneath clear yellow.

This species is named for Mr. William P. Comstock of the American Museum of Natural History.

TYPE MATERIAL: Holotype, female, Hacienda San Francisco, Rio Mapoto and Rio Pastaza, Tungurahua, Ecuador, 1300 meters, September 27, 1938. Paratypes: nine females, topotypic; two females, Rio Margarjitas, Rio Pastaza, Tungurahua; two females, Hacienda Mascota, Rio Topo, Napo-Pastaza (Coxey).

Campos' record (1927, *ibid.*, nos. 27-28, p. 10) of *Ithomia salvinia* Bates may possibly be this species.

### **Hypoleria santiagona**, new species

Figure 18

The hindwing venation is characteristic of a few *Hypoleria* species, especially *H. orolina* Hewitson, in which Rs,  $M_1$ , and 3d are complete, not atrophied, and the cell is closed. Slightly smaller than *orolina*, and with the same general scheme of color and pattern, which is found also in *H. sedusa* Haensch and *H. oculata* Haensch.

MALE: *Hypoleria santiagona* differs from similar *Hypoleria* species in that the yellow tawny band of the hindwing is densely scaled throughout and is sharply delineated proximad by a narrow opaque brown line. All veins in the hyaline areas of the wing are brown scaled. The discocellular

band is wider than in *orolina*, bifid at the lower corner of the cell, continued over  $M_2$  and  $M_3$  as far as the brown line preceding the tawny band. A transparent costal spot lies beyond the cell apex, slightly whitened; the base of  $M_1$  is slightly white, crossed by a vague whitish spot. There is a whitish suffusion in  $Cu_1$ - $Cu_2$  and in the end of the cell. The tawny band fills the subapical area and is more narrowly continued in the cubital-distal margin to the anal angle. Hindwing above with thinly brown veins, black brown margins with rusty brown central line (as in *orolina*), the rest of the wing hyaline. Beneath as above, the white admarginal spots of the forewing forming a nearly continuous line in the apex; a row of narrow, long admarginal white spots in the hindwing. Antennae black; abdomen brown above, white below.

TYPE MATERIAL: Holotype, male, between Chupientza and Rio Tayusa, Rio Upano, Santiago-Zamora, Ecuador, 750 meters, February 11, 1939. Paratype: one male, Rio Santiago, Peru [Ecuador] (Bassler).

### **VELADYRIS**, NEW GENUS

Figures 9, 10

This genus is erected to receive *Ithomia pardalis* Salvin and its Peruvian subspecies, *Velamysta totumbra* Kaye, which have been placed with *Velamysta*. The venation of the hindwing separates these forms at once from *Velamysta*, while the male genitalia indicate a relationship with *Godyris* rather than with the *Dircenna* complex to which *Velamysta* belongs.

Male with two well-separated hair pencils on the hindwing, a small basal one and a larger darker outer one placed about halfway out to the end of the cell, both patches lying posterior to R. Humeral of both sexes bifid; forewing with 2d angled (3d in *Velamysta*). In the male Sc and R separate at the base, running closely parallel for a few millimeters, then Sc swings away and then back, outlining a raised area (as in *Hypoleria*), inosculating, in the specimens examined, with Rs near the margin. Veins not swollen at cell apex; Rs swings upward at the upper end of 1d; 1d, R, and Rs together form a narrow "Y"; 2d angled.

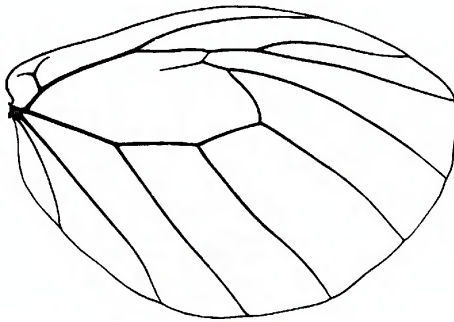
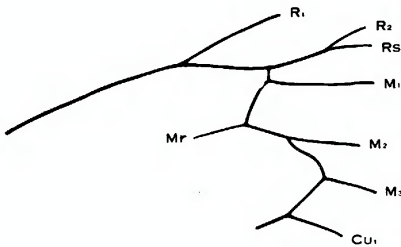
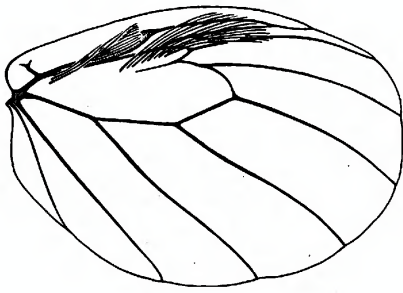


Fig. 9. *Veladyris pardalis*, male hindwing, detail of female forewing, female hindwing. (Drawn by Alice Gray.)

0.5 mm

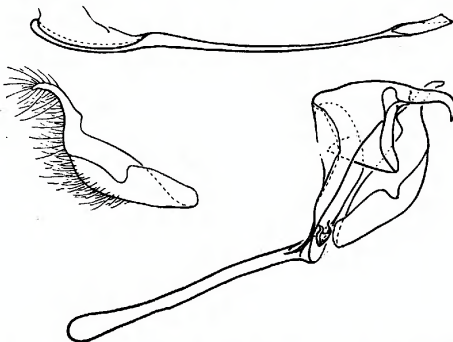


Fig. 10. *Veladyris pardalis*, dissection of male genital armature. (Drawn by Alice Gray.)

emitting a long Mr, the upper arm equal in length to 1d, the lower arm half the length; 3d complete, curved, about twice the length of 1d; anterior side of cell much shorter than posterior side; Rs and M<sub>1</sub> not inosculating. Female with Sc and R completely united as far as halfway to the cell apex, then Sc swings steeply away, curving to reach the margin in the wing apex, its total length more than twice the greatest width of the cell; 1d wanting, M<sub>1</sub> and Rs separating well beyond the cell apex; 2d, 3d, and Mr as in the male.

Male genitalia closest to *Godyris*, but the valves narrower and the penis far more slender; gnathos stronger than in *Hypoleria*, uncus heavier and penis much longer in proportion.

GENOTYPE: *Ithomia pardalis* Salvin.

#### DYGORIS, NEW GENUS

Figures 11, 12

*Ithomia dircenna* C. and R. Felder has been placed in *Godyris*, but an examination of a pair of this rare species (San Martin district, Peru, collected by Woytkowski, in the Carnegie Museum) shows that it must be placed in a separate genus. The male genitalia and the female hindwing venation distinguish this from any other genus.

The hindwing of the male is hardly separable from that of *Godyris*. The hair pencil is long, single; humeral vein lightly bifid; 1d very short, 2d five times as long, 3d atrophied, cell open; Sc atrophied before emarginating. The female hindwing has 1d and M<sub>1</sub> totally wanting, 3d angled with the lower arm straight, not curved.

In the male genitalia, the tegumen is narrow, not broadened as in most *Ithomiinae*. Uncus relatively short (about one-quarter the height of the genitalia) and broad, not produced to a point, semi-oval on the whole, membranous, heavily spined, its posterior edge cleft (my slide gives the appearance of a manatee's nose!). Valves small, narrow, apex produced into a blunt curved point, costal margin negligible, ventral fold produced to a sharp tooth at its anterior end, heavily spined. Penis strongly curved, S-shaped; proximal end broad, foramen one-third its length.

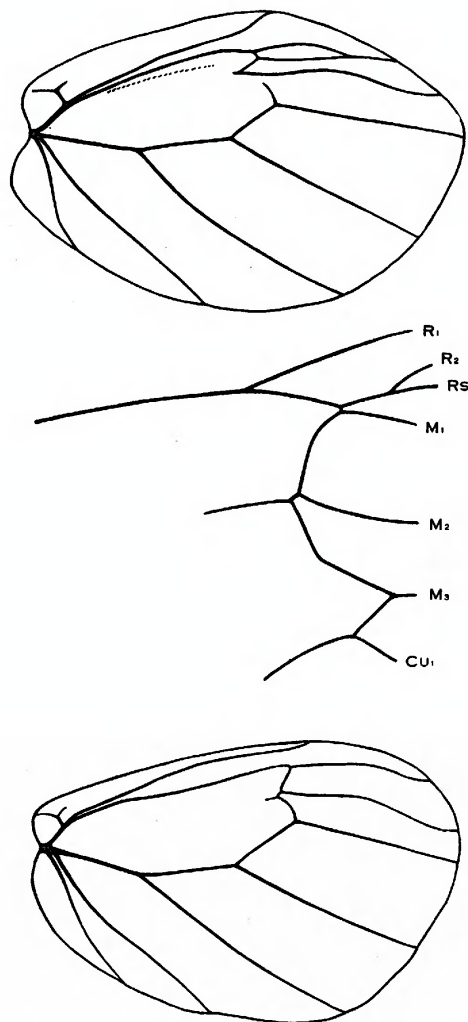


Fig. 11. *Dygoris dircenna*, male hindwing; detail of female forewing, female hindwing (Drawn by R. M. Fox.)

GENOTYPE: *Ithomia dircenna* C. and R. Felder.

***Dygoris dircenna pastazana*,**  
new subspecies

Figures 12, 22

MALE AND FEMALE: The wing pattern is just as in *dircenna dircenna* C. and R. Felder, but the cell bar and the bar over the cubital segment of the forewing and the bar across  $M_3$ - $Cu_1$  of the hindwing are heavier in the male, the dark patch at the end of the hindwing cell is entirely wanting in the female; the admarginal spots be-

neath are narrower; the dark color on the upper is much lighter than in *dircenna*, being a rusty brown rather than black brown; the yellow patches in the transparent postdiscal forewing area of the male are fainter and more diffuse; 3d and 4d are entirely yellow.

TYPE MATERIAL: Holotype, male, El Partidero, Rio Anzu, Napo-Pastaza, Ecuador, 1000 meters, September, 1935 (genitalia slide 420). Allotype, female, Pacai-

0.5 mm.

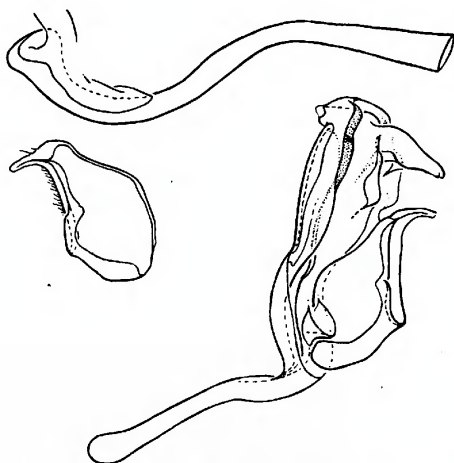


Fig. 12. *Dygoris dircenna pastazana*, dissection of male genital armature. (Drawn by Alice Gray.)

yacu, Rio Bobonaza, Napo-Pastaza, Ecuador, 800 meters, September, 1938.

**HYPOMENITIS, NEW GENUS**

Figures 13, 14

*Hypomenitis*, which so far as I know is monotypic, is distinguished from *Godyris* by the genitalia, by the two separated hair pencils and the nonbifid humeral vein. It differs from *Greta* by the hair patch, which in that genus is either single (continuous) or, if divided, the two parts are not well separated. In *Greta* females 2d is wanting, with  $M_1$  and  $M_2$  stalked. In *Hypomenitis* 2d is present,  $M_1$  and  $M_2$  distinct. It is distinguished from *Hypoleria* by the humeral vein in both sexes and by the strong 1d of the females which is wanting in *Hypoleria*.

Humeral vein of the hindwing simple, not bifid. In the male there are two well-



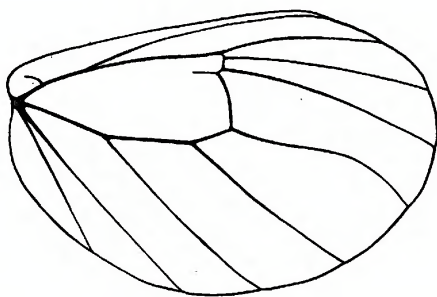
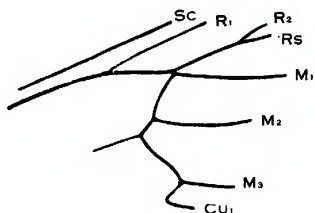
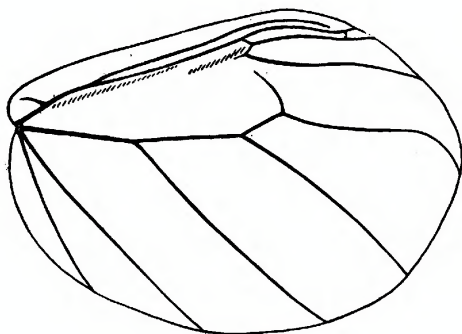


Fig. 13. *Hypomenitis theudelinda*, male hindwing, detail of female forewing, female hindwing. (Drawn by R. M. Fox.)

separated hair patches, the basal one of which is long, the distal one consisting of only a few hairs in the cell apex. Sc separating from R gradually, atrophied opposite the cell apex; 1d and 2d both short, about equal in length, 1d forming an obtuse inside angle with Rs, and about a right angle with 2d; 3d evenly curved, longer than 1d plus 2d by far, atrophied at its anterior end, the cell open. All other veins complete and reaching the margin. In the female, Sc

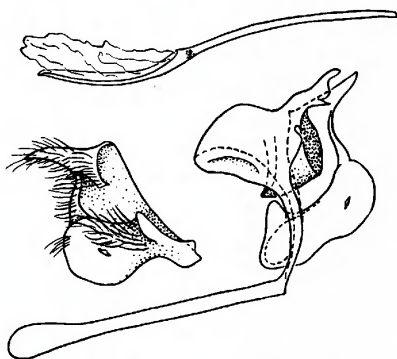
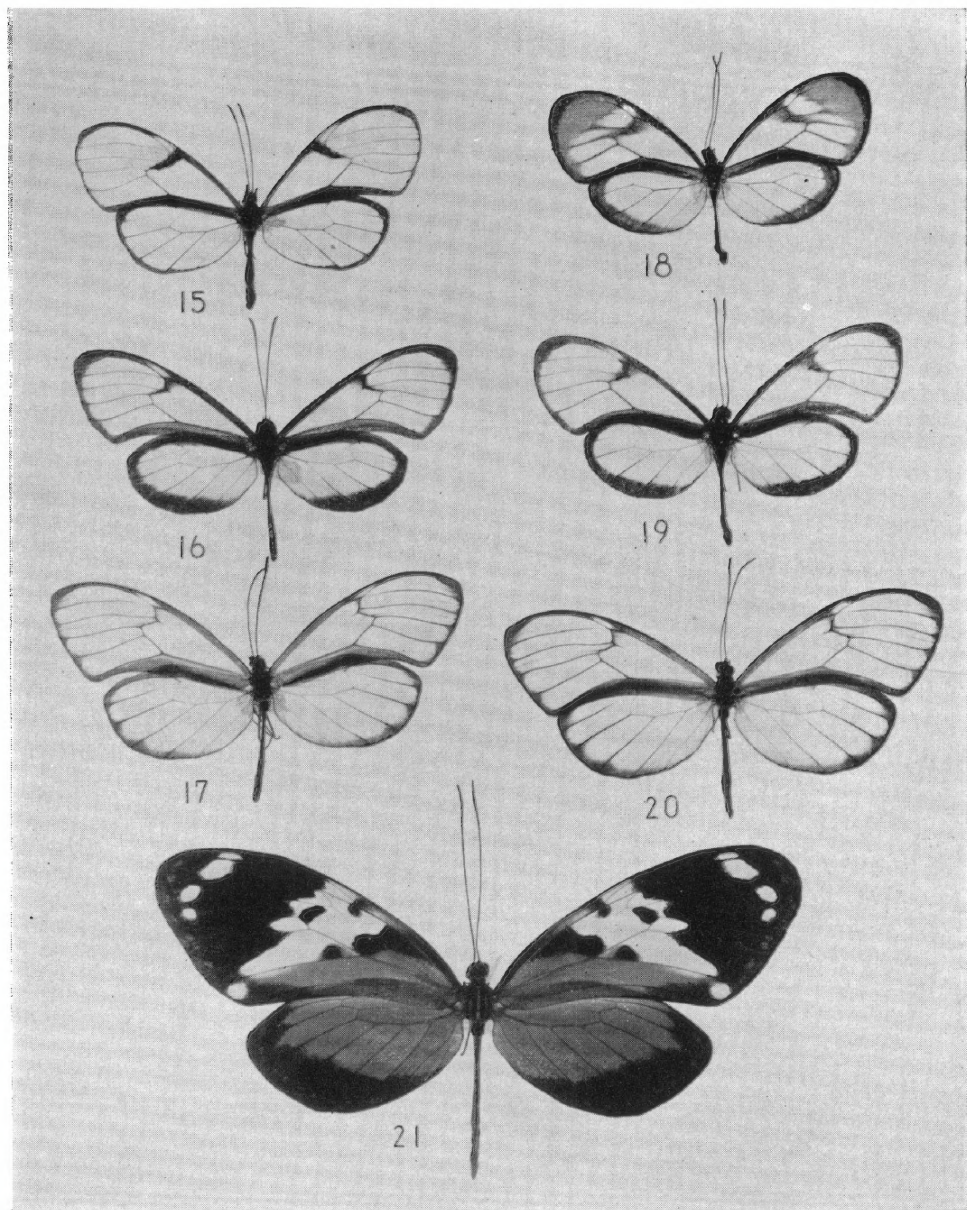


Fig. 14. *Hypomenitis theudelinda*, dissection of male genital armature. (Drawn by R. M. Fox.)

gradually separates from R, reaching the margin above the cell apex; 1d two-thirds the length of 2d, 3d long, the main part evenly curved, the short Mr emitted from an angle of 3d which is situated close to 2d.

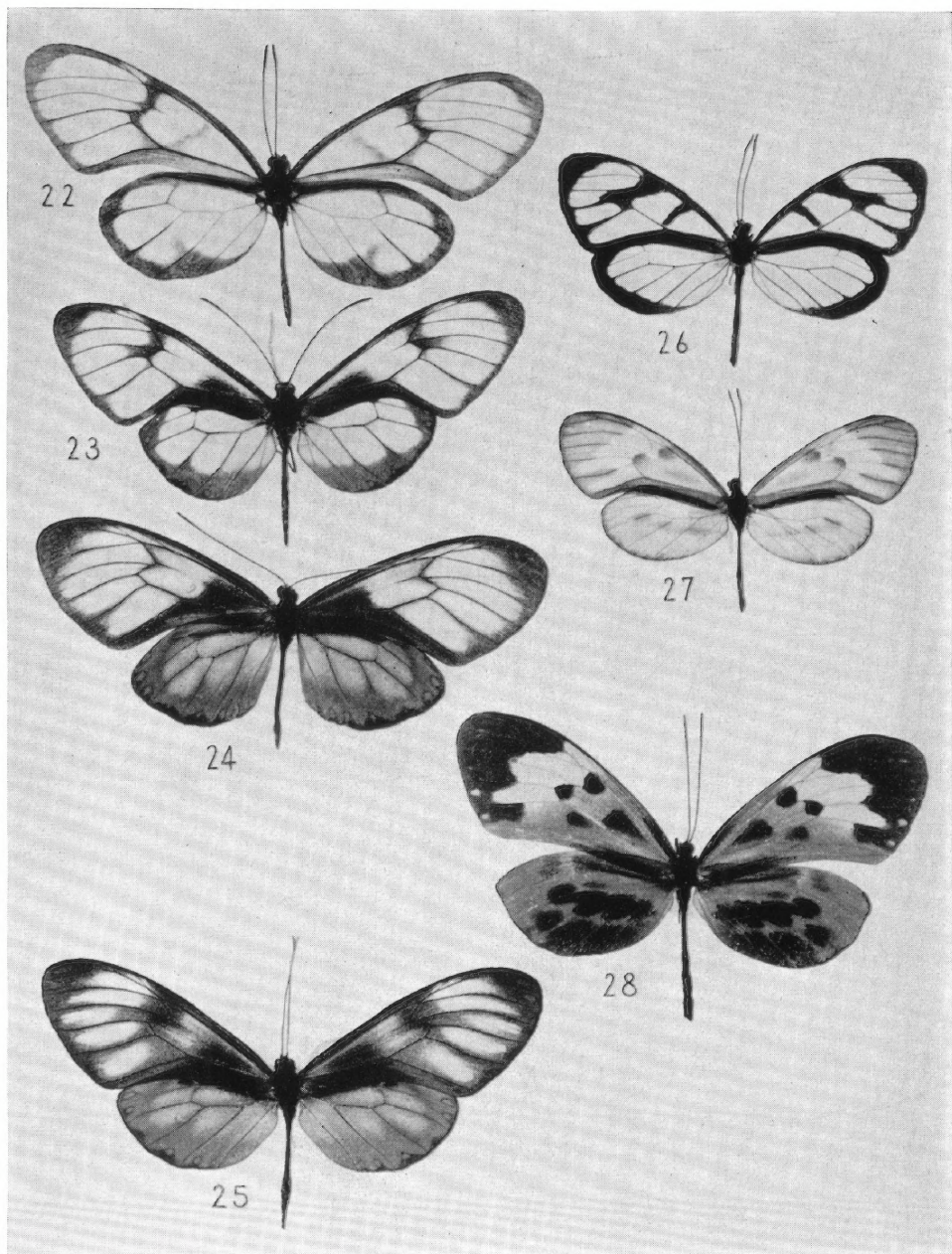
Male genitalia characterized by the slender penis, the peculiarly shaped uncus, and the valves, which are constricted below the distal process and bear a wide in-turned fold which is continuous with the juxta.

GENOTYPE: *Ithomia theudelinda* Hewitson.



- Fig. 15. *Episcada comstocki*, paratype, female.  
Fig. 16. *Pteronymia browni*, holotype, male.  
Fig. 17. *Velamysta phengites*, holotype, male.  
Fig. 18. *Hypoleria santtagona*, holotype, male.  
Fig. 19. *Pteronymia gertschi*, paratype, male.  
Fig. 20. *Velamysta phengites*, allotype, female.  
Fig. 21. *Melinaea vespertina*, paratype, female.





- Fig. 22. *Dygoris dircenna pastazana*, holotype, male.  
Fig. 23. *Callithomia zingiber*, holotype, male.  
Fig. 24. *Callithomia lauta*, holotype, female.  
Fig. 25. *Callithomia zingiber*, paratype, female.  
Fig. 26. *Ithomia diasia browni*, paratype, male.  
Fig. 27. *Ceratinia bisulca*, paratype, male.  
Fig. 28. *Hypothyris meterus zephyrus*, holotype, female.